



Radionuclide Monitoring Fact Sheet

Who Monitors For Radionuclides?

All Community Public
Water Systems
Supplied By Surface
Water or Ground Water

Contaminants

Monitored:

- Gross Alpha Particle Activity
- Radium-226
- Radium-228
- Manmade Radionuclides

What Are The Health Effects of Radium?

What Are Sources of Radium?

Monitoring Frequency for Radionuclides

Action Levels and Maximum Contaminant Levels

All community public water systems supplied by ground water or surface water must monitor for radionuclides. These water systems carry out radionuclide monitoring by testing for the presence of gross alpha particle activity. A system may be required to carry out further monitoring for radium-226 and/or radium-228 depending on the result of the gross alpha particle activity screening.

Additionally, community public water systems supplied by a surface water source and serving more than 100,000 persons must monitor for manmade radionuclides (gross beta particle activity, tritium, and strontium-90). Because very few water systems are subject to these requirements, *the following information will focus on gross alpha particle activity, radium-226 and radium-228 monitoring.*

Radium has been found to cause cancer when consumed in high doses. Both radium-226 and radium-228 are considered carcinogens. Radium is a chronic contaminant – long term health effects are of more concern than immediate health effects.

Radium is a naturally occurring contaminant in drinking water. It is one of several natural radioactive elements and is found in most major rock types in varying concentrations. The types of rock which typically contain a higher than average amount of radium include shales, granites, and sandstones.

Newly established or identified water systems are required to take four consecutive quarterly samples for gross alpha particle activity. The average of these four quarterly samples is then compared to the action level for gross alpha particle activity (5 pCi/l). If the action level has not been exceeded, the system is required to take one sample every four years for gross alpha particle activity. These subsequent samples will also be compared to the gross alpha particle activity action level.

In the event that the gross alpha particle activity action level has been exceeded, the system is required to test for radium-226. If the result of this test exceeds the action level for radium-226 (3 pCi/l), a sample for radium-228 is required. The results of the radium-226 and radium-228 tests are added together. If the sum of these results is greater than the 5 pCi/l maximum contaminant level (MCL) for combined radium-226 and

radium-228, the system is required to conduct quarterly monitoring for both radium-226 and radium-228. The average of four quarterly combined radium-226 and radium-228 samples is then compared to the MCL. If the average of the four quarterly samples is greater than the MCL (5 pCi/l), the system is considered in violation of the MCL and is required to conduct continued quarterly monitoring, provide public notification, and pursue remediation of contamination.

Who Do I Contact If I Have Questions?

You should contact the *IDEM Drinking Water Branch* if you have any questions regarding radionuclide monitoring. Our number is (317)308-3282. You may also contact the *IDEM Environmental Helpline* at (800)451-6027, or the *EPA Safe Drinking Water Hotline* at (800)426-4791.

Rule Citations

327 IAC 8-2-10 and 327 IAC 8-2-15

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